Middle School Course 1
Khan Academy Video Correlations
By SpringBoard Activity

SB Activity	Khan Academy Video(s)
Unit 1: Number Concepts	
Activity 1 *Whole Numbers and Decimals* 1-1 Learning Targets: • Locate whole numbers and decimals on a number line. • Interpret statements of inequality of whole numbers and positive decimals. • Order a set of positive whole numbers and decimals. 1-2 Learning Targets: • Add and subtract multidigit decimals. • Solve real-world problems by adding and subtracting decimals. 1-3 Learning Targets: • Multiply multidigit decimals. • Estimate products of decimals. • Solve real-world problems by multiplying decimal numbers. 1-4 Learning Targets: • Divide whole numbers by whole numbers. • Estimate quotients of whole numbers. • Solve real-world problems by dividing whole numbers. 1-5 Learning Targets: • Divide decimals by whole numbers. • Divide whole numbers and decimals by decimals. • Estimate quotients. • Solve real-world problems by dividing decimals.	***Comparing and Ordering Whole Numbers and Decimals*** Decimals: Comparing place values Comparing decimals: place value difference Comparing decimals: difference in largest place value Comparing decimals: ordering from least to greatest Comparing decimals: ordering from smallest to biggest ***Adding and Subtracting Decimals*** Adding decimals: example 1 Adding decimals: example 2 Adding decimals: example 3 Adding decimals word problem Subtracting decimals example 1 Subtracting decimals example 2 Adding and subtracting decimals word problem ***Multiplying Decimals*** Multiplying decimals example Multiplying challenging decimals Multiplying decimals word problem ***Dividing Whole Numbers*** Dividing by two digits example 2 Dividing completely to get decimal answer ***Dividing Decimals*** Dividing by a multi-digit decimal Dividing decimals with hundredths Dividing decimals with hundredths example 3
Activity 2 *Prime Factorization and Exponents* 2-1 Learning Targets: • Determine whether a given whole number is a prime number or a composite number.	***Prime Factorization*** Prime factorization Prime factorization exercise Recognizing prime and composite numbers Prime numbers

• Express a composite number as a product of prime numbers. 2-2 Learning Targets: • Evaluate a whole number or decimal raised to a whole number exponent. • Express prime factorization using exponents when a prime factor occurs more than once.	***Exponents*** Introduction to exponents
Activity 3 *Greatest Common Factor and Least Common Multiple* 3-1 Learning Targets: • Find all the factors of a whole number. • Find the greatest common factor of two whole numbers. 3-2 Learning Targets • Find multiples of a whole number. • Find the least common multiple of two or more whole numbers.	***Greatest Common Factor*** Greatest common factor explained Greatest common factor exercise LCM and GCF word problems ***Least Common Multiple*** Least common multiple exercise Least common multiple exercise 2 Least common multiple exercise: 3 numbers LCM and GCF word problems
Activity 4 *Fractions and Mixed Numbers* 4-1 Learning Targets: • Given a proper fraction, find equivalent fractions. • Expression proper fractions in simplest form. • Locate proper fractions on a number line. 4-2 Learning Targets: • Interpret statements of inequality of proper fractions in terms of a number line and in terms of real-world contexts. • Compare proper fractions. • Order a set of proper fractions. 4-3 Learning Targets: • Locate mixed numbers on a number line. • Convert an improper fraction to a whole number or mixed number. • Converting a whole number or mixed number to an improper fraction. 4-4 Learning Targets: • Interpret statements of inequality of mixed numbers in terms of a number line and in terms of real-world contexts. • Compare mixed numbers. • Order a set of mixed numbers or fractions.	***Meaning of Fractions*** Fractions in lowest terms Visualizing equivalent fractions Equivalent fraction word problem example Equivalent fraction word problem example 2 Equivalent fraction word problem example 3 Plotting basic fractions on the number line ***Comparing and Ordering Fractions*** Comparing fractions Comparing and ordering fractions Comparing fractions with greater than and less than symbols Comparing fractions with like numerators and denominators Comparing fractions with different denominators ***Mixed Numbers*** Mixed numbers and improper fractions Proper and improper fractions Converting mixed numbers to improper fractions Mixed numbers: changing to improper fractions

	Mixed numbers: changing from an improper fraction
	Comparing and Ordering Mixed Numbers
	Comparing improper fractions and mixed numbers Mixed number or improper fraction on a number line
Activity 5 *Multiplying Fractions and Mixed Numbers* 5-1 Learning Targets: • Multiply a whole number by a fraction less than 1. • Multiply two fractions less than 1. • Estimate the product of a fraction and a whole number. 5-2 Learning Targets: • Multiply mixed numbers by fractions, whole numbers, and other mixed numbers. • Estimate products involving mixed numbers.	***Multiplying Fractions*** Multiplying fractions and whole numbers Multiplying two fractions: an explanation Multiplying two fractions: example Multiplying mixed numbers ***Multiplying Fractions: Word Problems*** Multiplying fractions word problem: movie marathon Multiplying fractions word problem: milk love Multiplying fractions word problem: pigging out on pumpkin pie Multiplying fractions word problem: banana oat muffin recipe Multiplying fractions word problem: laundry emergency Multiplying fractions word problem: bike to a friend
Activity 6 *Dividing Fractions and Mixed Numbers* 6-1 Learning Targets: • Divide a whole number by a fraction less than 1. • Divide a fraction by a whole number or fraction. • Solve real-world problems by dividing such numbers. 6-2 Learning Targets: • Divide a mixed number, whole number, or fraction by a mixed number. • Estimate such quotients. • Solve real-world problems by dividing such numbers.	***Dividing Fractions*** Dividing whole numbers and fractions: potpourri Dividing whole numbers and fractions: studying Dividing whole numbers and fractions: t-shirts Understanding division of fractions Dividing fractions example Dividing fractions example 2 Reciprocal of a mixed number
Unit 2: Integers	
Activity 7 *Introduction to Integers* 7-1 Learning Targets: • Use integers to represent quantities in real-world contexts. • Position and identify integers on a number	***Negative Numbers*** Negative numbers introduction Negative numbers and number line examples Opposite of a number Negative symbol as opposite

line. • Find the opposite of an integer. • Find the absolute value of an integer. • Classify whole numbers, integers, and positive rational numbers. 7-2 Learning Targets: • Compare and order integers. • Interpret statements of inequality of integers in terms of a number line and of real-world contexts. • Distinguish comparisons of absolute value from statements about the order of integers.	Number opposites practice Ordering negative numbers ***Absolute Value*** Absolute value of integers Comparing absolute values
Activity 8 *Adding and Subtracting Integers* 8-1 Learning Targets: • Using models, create several representations of a given integer. • Using models, add any two integrated with absolute value less than 10. 8-2 Learning Targets: • Add two or more integers. • Solve real-world problems by adding integers. 8-3 Learning Targets: • Use models to subtract one integer with absolute value less than 10 from another. • Subtract integers. • Solve real-world problems by subtracting integers.	***Adding and Subtracting Integers*** Learn how to add and subtract negative numbers Adding/subtracting negative numbers Adding negative numbers Adding numbers with different signs Subtracting a negative = adding a positive Negative number word problem
Activity 9 *The Coordinate Plane* 9-1 Learning Targets: • Graph and identify ordered pairs of rational numbers. • Understand and use terms such as *origin, quadrant, x-axis, first coordinate*, and *second coordinate* associated with graphing on the coordinate plane. 9-2 Learning Targets: • Find the distance between points in the coordinate plane with the same first coordinate or the same second coordinate. • Solve real-world and mathematical problems by graphing points in the coordinate plane and finding the distances between them. • Find the reflection of a point over one or both axes.	***Integers in The Coordinate Plane*** The coordinate plane Coordinate plane: plot ordered pairs Coordinate plane: have all the points been graphed? Coordinate plane: quadrants Coordinate plane: graphing points and naming quadrants Coordinate plane: word problem exercise ***Reflecting Points on the Coordinate Plane*** Coordinate plane: reflecting points
Activity 10 *Multiplying and Dividing Integers*	***Understanding Multiplication of Negative Numbers*** Why a negative times a negative is a positive

10-1 Learning Targets: • Multiply integers. • Solve real-world problems by multiplying integers. 10-2 Learning Targets: • Divide integers. • Solve real-world problems by dividing integers.	Why a negative times a negative makes intuitive sense ***Multiplying Integers*** Multiplying positive and negative numbers Dividing positive and negative numbers Multiplying numbers with different signs
Unit 3: Expressions and Equations	
Activity 11 *Expressions* 11-1 Learning Targets: • Use the order of operations to simplify expressions involving addition, subtraction, multiplication, and division. • Use the order of operations to simplify expressions involving whole number exponents and parentheses. 11-2 Learning Targets: • Use variables to represent numbers and write expressions to solve problems. • Evaluate expressions containing variables. 11-3 Learning Targets: • Use variables to represent quantities. • Write expressions to represent quantities. 11-4 Learning Targets: • Apply the properties of operations to generate equivalent expressions. • Identify when two expressions are equivalent.	***Order of Operations*** Introduction to order of operations Order of operations example Order of operations example: putting it all together Order of operations: PEMDAS ***Evaluating Algebraic Expressions*** What is a variable? Expression terms, factors and coefficients Evaluating an expression example Evaluating an expression using substitution Evaluating an expression with exponents ***Writing Expressions*** Writing simple algebraic expressions Writing algebraic expressions Writing algebraic expressions example 2 ***Properties of Operations*** Commutative property for addition Commutative law of addition Commutative law of multiplication Associative law of addition Associative law of multiplication Properties of numbers 1 Number properties terminology 1 Identity property of 1 Identity property of 1 (second example) Identity property of 0 Inverse property of addition Inverse property of multiplication

	[Properties of numbers 2]
Activity 12 *Equations* 12-1 Learning Targets: • Write one-variable, one-step equations to represent situations. • Distinguish between expressions and equations. 12-2 Learning Targets: • Understand what it means to solve an equation. • Use substitution to determine which values from a specified set make an equation true.	***Equation Basics*** [Variables, expressions, and equations] [Representing a relationship with a simple equation] [Testing solutions to equation]
Activity 13 *Solving Addition and Subtraction Equations* 13-1 Learning Targets: • Write a one-step addition equation to model a situation. • Solve an addition equation of the form x + a = b, where *a, b,* and *x* are all nonnegative integers. 13-2 Learning Targets: • Write addition equations to represent situations. • Solve one-step addition equations of the form x + a = b, where *a, b,* and *x* are all nonnegative rational numbers. • Given an equation of the form x + a = b, where *a, b*, and *x* are all nonnegative rational numbers, write a corresponding real-world problem. 13-3 Learning Targets: • Write a subtraction equation to represent a situation. • Solve a subtraction equation of the form x – a = b, where *a, b,* and *x* are all nonnegative rational numbers. 13-4 Learning Targets: • Write subtraction equations to represent situations. • Solve subtraction equations by adding the same number to both sides of the equation. • Given an equation of the form x – a = b, where *a, b,* and *x* are all nonnegative rational numbers, write a corresponding real-world problem.	***Solving Equations with Addition and Subtraction*** [Simple equations of the form x + a = b] [Adding and subtracting from both sides of an equation]
Activity 14	***Solving Equations with Multiplication and Division***

Solving Multiplication and Division Equations 14-1 Learning Targets: • Write a one-step multiplication equation to model a situation. • Solve a multiplication equation of the form ax=b, where *a, b,* and *x* are all positive integers. 14-2 Learning Targets: • Write multiplication equations to represent situations. • Solve a multiplication equation of the form ax=b, where *a, b,* and *x* are all positive rational numbers. • Given an equation of the form ax=b, where *a, b,* and *x* are all positive rational numbers, write a corresponding real-world problem. 14-3 Learning Targets: • Write a division equation to represent a situation. • Solve a division equation by multiplying both sides of the equation by the same number.	Simple equations of the form ax = b Simple equations of the form x/a = b Dividing from both sides of an equation
Activity 15 *Expressions and Equations* 15-1 Learning Targets: • Write inequalities to represent constraints or conditions within problems. • Use substitution to determine whether a given number makes an inequality true. • Graph solution sets of inequalities. • Given an inequality, write a corresponding real-world problem. 15-2 Learning Targets: • Write one-step inequalities to represent constraints or conditions within problems. • Use substitution to determine whether a given number makes an inequality true. • Solve one-step inequalities. • Graph the solution sets of one-step inequalities.	***Representing Situations with Inequalities*** Inequalities: plotting on a number line A simple inequality: plotting on a number line Testing solutions to inequalities Inequality word problems Inequality word problem: one variable Constructing and solving a one-step inequality ***Solving One-Step Inequalities*** One-step inequality involving addition Inequalities using addition and subtraction Multiplying and dividing with inequalities Multiplying and dividing with inequalities example
Activity 16 *Expressions and Equations* 16-1 Learning Targets: • Create a table representing a relationship given a verbal description. • Write an equation to represent a relationship given a verbal description or table. • Investigate rate of change. • Graph equations of the form *y=ax*.	***Tables of Values and Graphing*** Dependent and independent variables exercise: the basics Dependent and independent variables exercise: graphing the equation Dependent and independent variables exercise: express the graph as an equation

16-2 Learning Targets: • Graph equations of the form $y = kx$ or $y = x + b$. • Create a table and graph a relationship given a verbal description. • Explain how one variable depends on another variable. • Describe a relationship given a graph.	
Unit 4: Ratios	
Activity 17 *Understanding Ratios* 17-1 Learning Targets: • Understand the concept of a ratio and use ratio language. • Represent ratios with concrete models, fractions, and decimals. • Give examples of ratios as multiplicative comparisons of two quantities describing the same attribute. 17-2 Learning Targets: • Make tables of equivalent ratios relating quantities. • Use tables to compare ratios. • Plot the pairs of values on the coordinate plane and describe the relationship.	***Understanding Ratio*** Introduction to ratios Ratios as fractions ***Ratios in Proportional Relationships \: Solving Ratio Problems*** Ratio word problem: boys to girls Ratio word problem: centimeters to kilometers Solving ratio problems with tables example 1 Solving ratio problems with tables example 2 Solving ratio problems with graph
Activity 18 *Reasoning with Ratios* 18-1 Learning Targets: • Use ratio and rate reasoning to solve problems. • Use ratio reasoning to convert measurement units. • Apply quantitative reasoning, including predicting and comparing to solve real-world problems involving ratios and rates. 18-2 Learning Targets: • Use ratio and rate reasoning to solve problems by reasoning about double number line diagrams and equations. • Use ratio reasoning to convert measurement units. • Represent mathematical and real-world problems involving ratios and rates using scale factors and proportions.	***Unit Conversions*** Converting pounds to ounces Converting yards to inches ***Unit Conversions: Real-World Examples*** Unit conversion word problem: roadtrip Unit conversion word problem: drug dosage Unit conversion word problem: yards to inches
Activity 19 *Rates and Unit Rates* 19-1 Learning Targets: • Understand the concept of a unit rate $\frac{a}{b}$ associated with the ratio $a: b$ with b ≠ 0.	***Unit Rates*** Solving unit rates problem Solving unit price problem

• Use rate language in the context of a ratio relationship. • Give examples of rates at the comparison by division of two quantities having different attributes. 19-2 Learning Targets: • Solve unit rate problems. • Convert units within a measurement system, including the use of proportions and unit rates. 19-3 Learning Targets: • Use ratio and rate reasoning to solve problems. • Represent mathematical and real-world problems involving ratios and rates using scale factors and proportions.	
Activity 20 *Using Models to Understand Percents* 20-1 Learning Targets: • Find a percent of a quantity as a rate per 100. • Represent ratios and percents with concrete models and decimals. • Represent benchmark fractions and percents. • Generate equivalent forms of decimals and percents. 20-2 Learning Targets: • Represent ratios and percents with fractions and decimals. • Represent benchmark percents such as 1%, 10%, 25%, 33 $\frac{1}{3}$%, and multiples of these values using number lines and numbers. • Use percents, fractions, and decimals to show parts of the same whole. 20-3 Learning Targets: • Find a percent of a quantity as a rate per 100. • Generate equivalent forms of fractions, decimals, and percents using real-world problems. • Represent percents with concrete models, fractions, and decimals.	***Understanding Percent*** **The meaning of percent** **The meaning of percent over 100** **Percentage of a whole number** ***Percent, Fractions, and Decimals*** **Converting percent to decimal and fraction** **Converting decimals to percents** **Converting decimals to percents example 2** **Converting percents to decimals** **Converting percents to decimals example 2** ***Finding Percents*** **Finding a percentage**
Activity 21 *Applying Percents* 21-1 Learning Targets:	***Percents: Real-World Problems*** **Percent word problem example 1**

• Solve real-world problems to find the percent, given the part and the whole. • Use ratio and rate reasoning to solve real-world and mathematical problems . 21-2 Learning Targets: • Solve real-world problems to find the part, given the whole and the percent. • Use ratio and rate reasoning to solve real-world and mathematical problems. 21-3 Learning Targets: • Solve problems to find the whole given a part and the percent. • Represent ratios and percents with fractions and decimals. • Represent benchmark percents such as 1%, 10%, 25%, and $33\frac{1}{3}$%, and multiples of these values using number lines and numbers. • Use equivalent percents, fractions, and decimals to show parts of the same whole.	Percent word problem example 2 Percent word problem example 3 Percent word problem example 4 Percent word problem example 5
Unit 5: Geometric Concepts	
Activity 22 *Angles and Triangles* 22-1 Learning Targets: • Determine when three side lengths form a triangle. • Use the Triangle Inequality Property. • Classify triangles by side length. 22-2 Learning Targets • Classify angles by their measures. • Classify triangles by their angles. • Recognize the relationship between the lengths of sides and measures of angles in a triangle. • Recognize the sum of angles in a triangle.	***Properties of Triangles and Side Length*** Triangles: categorization by angle or equal sides. ***Properties of Triangles and Angle Measure*** Triangles: using angles to categorize ***Triangle Inequality Theorem*** Triangle inequality theorem
Activity 23 *Area and Perimeter of Polygons* 23-1 Learning Targets: • Define and classify quadrilaterals based on their properties. • Use properties of quadrilaterals to determine missing side lengths and angle measures.	***R Quadrilaterals*** Quadrilateral overview Quadrilateral properties Quadrilaterals: find the type exercise Quadrilaterals: classifying shapes ***Quadrilaterals: Perimeter and Area***

23-2 Learning Targets: • Model the area of a parallelogram by decomposing into triangles. • Find the area of special quadrilateral by decomposing into triangles. • Write equations that represent problems related to the area of parallelograms and rectangles. • Solve problems involving the area of parallelograms and rectangles. • Find the area of special quadrilaterals and polygons by composing into rectangles or decomposing into triangles and other shapes. 23-3 Learning Targets • Model area formulas for parallelograms, trapezoids, and triangles. • Write equations that represent problems related to the area of trapezoids and triangles. • Find the area of triangles, special quadrilaterals, and polygons. • Model area formulas by decomposing and rearranging parts.	Perimeter and area: the basics Area of a parallelogram Area of a trapezoid Finding area by rearranging parts Finding area by breaking up the shape Area of strange quadrilateral Perimeter of a parallelogram Perimeter and area of a non-standard polygon
Activity 24 *Polygons on the Coordinate Plane* 24-1 Learning Targets: • Draw polygons in the coordinate plane given vertex coordinates. • Find the length of a segment joining points with the same first coordinate or the same second coordinate. • Use coordinate geometry to identify locations on a plane. • Graph points in all four quadrants. • Solve problems involving the area on the coordinate plane. 24-2 Learning Targets: • Use coordinate geometry to identify locations on a plane. • Graph points in all four quadrants. • Solve problems involving the area of parallelograms, trapezoids, and triangles.	***Quadrilaterals on the Coordinate Plane*** Parallelogram on the coordinate plane Quadrilateral on the coordinate plane
Activity 25 *Nets and Surface Area* 25-1 Learning Targets:	***Nets and Surface Area*** Nets of polyhedra

• Represent three-dimensional figures using nets. • Use nets to find the surface area of figures. • Write equations that represent problems related to the area of rectangles. • Determine solutions for problems involving the area of rectangles. 25-2 Learning Targets: • Represent three-dimensional figures using nets. • Use nets to find the surface area of figures. • Write equations that represent area problems. • Solve problems involving the area of rectangles and triangles.	Finding surface area: nets of polyhedra
Activity 26 *Volume* 26-1 Learning Targets: • Find the volume of a right rectangular prism with fractional edge lengths. • Write equations that represent problems related to the volume of right rectangular prisms. 26-2 Learning Targets: • Write equations that represent problems related to the volume of right rectangular prisms. • Apply the formulas $V = lwh$ and $V = bh$ to find the volumes of right rectangular prisms.	***Finding Volume*** Volume: how measure it Volume: measuring with unit cubes Volume: measuring as area times length Volume of a rectangular prism Volume of a rectangular prism: fractional cubes Volume word problem
Unit 6: Data Analysis	
Activity 27 *Summarizing Data Graphically* 27-1 Learning Targets: • Identify statistical questions. • Interpret the variability of data collected from a survey. 27-2 Learning Targets: • Identify types of statistical variables. • Write statistical questions. • Construct graphs to represent statistical data.	***Statistical Questions*** Statistical and non statistical questions ***Bar Charts*** Creating a bar chart Reading bar charts: comparing two sets of data Reading bar graphs

27-3 Learning Targets: • Organize data from a statistical question. • Determine appropriate graphical representation of data. • Describe distributions from graphical representation.	
Activity 28 *Measures of Center* 28-1 Learning Targets: • Calculate the mean of a data set. • Identify outliers of a data set. • Construct dot plots. 28-2 Learning Targets: • Find the median. • Determine relative position of the mean and median in a distribution. 28-3 Learning Targets: • Construct dot plots. • Identify whether the mean or the median should be used to summarize the center of a distribution based upon the shape of the distribution.	***Mean, Median, Mode*** Statistics intro: Mean, median and mode Finding mean, median and mode Exploring the mean and median
Activity 30 *Summarizing Numerical Data Graphically* 30-1 Learning Targets: • Determine the five-number summary for numerical data. • Construct a box plot to represent numerical data. • Describe numerical data sets using comparative language. 30-2 Learning Targets: • Summarize data using frequency tables. • Construct histograms to represent numerical data. 30-3 Learning Targets: • Create class intervals. • Construct histograms using class intervals.	***Box and Whiskers*** Box and whisker plot Constructing a box and whisker plot ***Histograms*** Histograms